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22 March 1963

MEMORANDUM FOR: AFIGO-S  
Headquarters USAF

ATTENTION : Colonel Leo P. Geary, USAF

SUBJECT : Weather Support for Project OXCART

1. I have been informed that a requirement exists for more accurate measurement of the vertical distribution of temperature versus moisture in the lower troposphere. Vertical variations in the temperature-moisture relationship are accompanied by changes in refractive index values, which are numerical indicators of anomalous propagation of radar emitted electromagnetic energy waves.
2. RAOB data analysis leaves much to be desired due to inaccuracy and lag in the humidity element as well as the step process by which temperature, humidity and pressure contacts are received from the rising transmitter.
3. Aircraft refractive index measurement, correlated with twelve-hourly hemispheric EDPM analysis of RAOB soundings, will enhance the probability of success in forecasting the presence, intensification or decomposition of radar wave propagation - "DUCTING" - for flight planning purposes, a critical requirement of OXCART operations.
4. It is my understanding that the Ley Committee, AWS, recommended refractometer instrumentation of aircraft. At the present time, one aircraft is being equipped and two additional refractometer packages are being developed at McClelland AFB, California. Headquarters, Air Weather Service is to have operational control over this equipment.

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5. It is our desire to utilize the output of these aircraft soundings in the Mediterranean-Black-Caspian Sea region in support of OXCART. Timing makes it imperative that at least one aircraft be in place by 1 May 1963, so that correlations might be developed. Additional areas of interest will be the Barents-East Siberian Sea region to the north, and the North Pacific Ocean-Bering Sea region to the east of the USSR.

6. Informally, Headquarters, AWS has indicated the desire to fulfill this operational/research requirement, but action cannot be taken to expedite procurement of equipped aircraft or plan deployment until an official requirement has been levied on them by USAF.

7. This Headquarters will render any technological and operational assistance necessary to insure success in the collection and evaluation of the data received.

FOR THE DEPUTY DIRECTOR (RESEARCH)

BY: \_\_\_\_\_

JACK C. LEDFORD  
Colonel, USAF

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